

equilibrium level by the age of first breeding (usually 3–5 yr). This confirms predictions of pharmacokinetic models, and suggests that unhatched eggs of any female osprey provide an indication of her overall body burden of organochlorine contaminants.

SYSTEMATICS OF THE "RED-BACKED HAWKS" OF SOUTH AMERICA: HOW SPECIES DIAGNOSIS CAN BE CONFOUNDED BY ALLOMETRY AND SEXUAL SIZE DIMORPHISM

FARQUHAR, C.C. *Department of Ornithology, The American Museum of Natural History, New York, NY 10024 U.S.A.*

Red-backed hawks (*Buteo polyosoma*) and puna hawks (*B. poecilochrous*), ranging widely throughout the high Andes, Patagonia, and several islands, have always been difficult to separate both in the field and in museums. Overlapping distributions, extensive similarity in morphology and plumage, and a lack of good field data have made the task of understanding their systematics a formidable challenge. Use of the most widely accepted diagnostic characters, wing formula and wing length, has not simplified matters. I explored the possibility that allometry might exist among these and other traditionally used diagnostic characters by analyzing data collected from museum specimens of both taxa in adult plumage. The following statistically significant patterns appeared: (1) wing formula and wing length are negatively related in males, (2) wing formula and altitude are negatively related in females, and (3) wing length differentially affects other outer primary lengths between the sexes resulting in sexually dimorphic wing tip contours. These results are best explained by allometry and wing-loading requirements of larger birds, and because the principle diagnostic characters are clinally distributed in morphometric space I believe the characters in question do not serve sufficiently well to separate the species. Examination of alternative characters is required.

PRELIMINARY REPORT ON THE STATUS OF STELLER'S SEA EAGLES IN RUSSIA

GARCELON, D.K. *Institute for Wildlife Studies, P.O. Box 1104, Arcata, CA 95521 U.S.A.* E.G. LOBKOV. *Kronotsky State Biosphere Reserve, Kamchatka Region, Russia.* M.J. MCGRADY. *R.S.P.B., 17 Regent Terrace, Edinburgh, EH7 5BN, U.K.* M.R. FULLER. *RRTAC, 3948 Development Avenue, Boise, ID 83705 U.S.A.* I. UTEKHINA. *Magadan Natural Reserve, Magadan Region, Russia.* P. SCHEMPF. *U.S. Fish and Wildlife Service, P.O. Box 021287, Juneau, AK 99802 U.S.A.* E.R. POTAPOV. *Institute for the Study of Biological Problems of the North, Magadan Region, Russia.* H. NAKAGAWA. *Shiretoko National Park Nature Center, Shari-cho, Shari-gun, Hokkaido, 099-43, Japan*

We visited the Kamchatka and Magadan Regions of east-

ern Russia to study Steller's sea eagles (*Haliaeetus pelagicus*). Nests were surveyed by boat, helicopter, and ultralight aircraft. Of 28 territories visited in the Magadan Region, 18 were active and produced 1.16 chicks/nest. On Kamchatka, about one-half of the nesting attempts were successful. Nest substrates included cliffs, sea stacks, and trees. Nestlings were equipped with color bands, and bled for genetic and contaminant analyses. Initial studies on the seasonal movements of the eagles were initiated in conjunction with B. Meyburg. One juvenile eagle was tracked from the Kamchatka Peninsula to Japan. Threats to the eagles vary within the range of the species and include shooting, timber harvest, mining, oil extraction, and natural losses.

THE CARE OF RESIDENT RAPTORS AT AN ENVIRONMENTAL EDUCATION CENTER

GRIFFIN, D.S. *Carolina Raptor Center, P.O. Box 16443, Charlotte, NC 28297 U.S.A.*

This is an overview of the maintenance and care of the non-releasable raptors kept at the Carolina Raptor Center for public education, and a look at the evolution of our cage designs to meet the psychological and physical needs of the disabled birds while facilitating maintenance and cleaning. We use a rigorous volunteer training program emphasizing the need for consistency in methodology in handling the manned program birds. This presentation will also include a quick look at the equipment and record keeping that we use to monitor the health of our resident birds.

PHYLOGENETIC RELATIONSHIPS OF THE FALCONIFORMES

GRIFFITHS, C.S. *Department of Ornithology, American Museum of Natural History, New York, NY 10024 U.S.A.*

The systematic relationships of the diurnal birds of prey (order: Falconiformes) are unresolved. The monophyly of the order has not been established, and the relationships of the families within the order, and of genera within the three polytypic families are unclear. To derive a phylogeny for the order, I analyzed variation in syringeal morphology of genera within each of the currently recognized families in the order as well as among four orders of outgroups. The phylogeny derived from these syringeal data support the monophyly of the Falconiformes. In addition, syringeal data provide strong support for the monophyly of three clades within the Falconiformes: the Cathartidae, the Falconidae, and an Accipitrinae-Sagittariidae-Pandioninae cluster. Within the order, the Cathartidae are positioned as basal to the other two clades. The results of this analysis will provide a phylogenetic framework for a wide variety of research studies of this order, including ecological and conservation biological research.